Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

32
.Ag8

ACE-101

A COMPARISON OF THE EFFECTS OF SLASH AND LONGLEAF GUMS ON CUP MATERIALS

By

Ray V. Lawrence, Junior Chemist
Naval Stores Station, Olustee, Florida
Bureau of Agricultural Chemistry and Engineering
United States Department of Agriculture.

LIBRARY
RECEIVED
★ AUG 30 1941 ★
U. S. Department of Agriculture

The source of pine oleoresin, the raw material from which gum turpentine and gum rosin of commerce are obtained, is the living southern yellow pine tree, which may be either slash pine or longleaf yellow pine. In some areas of the naval stores belt one species may predominate, whereas in other areas the two species may be distributed about equally. The gums from the two species yield products of somewhat different character and differ in their action upon the equipment used in collecting, handling and processing the gum.

It is a generally accepted fact that longleaf gum produces a rosin of lower grade or darker color than that produced by slash gum under similar conditions.* Since very little has been published on this subject, it was thought that the results obtained at the Naval Stores Station on the effects of the gums from these two species upon the cup materials and upon the grade of rosin produced might be of some interest.

The trees used in this test were second growth and were located in the Osceola National Forest. All "faces" were on trees nine inches or more in diameter at breast height. Aluminum gutters or aprons were used on all faces to eliminate any iron contamination from this source. The faces were chipped once a week for eight months each season and the gum was dipped every fourth week, giving eight dippings. The cups were raised at the beginning of each season and face heights were kept as nearly equal as possible during the test. Thus the only variables in the experiments were the species of trees and cup materials.

The difference in rosin grades from two species is not due entirely to metal contamination from the corrosion of cup material, as can be seen from the trends with glass and aluminum cups. The difference in grade where corrosion-resistant cups are used is evidently due to different degrees of oxidation of the gum as it flows down the face. As the face height increases during the season, the grades from these cups on longleaf faces drop from above X to WW or WG, while the grades from these cups on slash timber changes very little if any, during the season. Obviously, this means that the slash pine gum oxidizes less than does longleaf pine gum.

*This was first observed by Mr. G. P. Shingler in 1927.

The results of these tests are given in the following tabulation:

The results of a 3 years' cup test on slash, and a 2 years' cup test on longleaf timber, using various kinds of cups.

	SLASH		LONGLEAF	
Type cup	No. years cup used	Grades of rosin	No. years cup used	Grades of rosin
Aluminum	3	X and above	2	X to N
Clay	3	X and above		
Galvanized sheet iron	3	X to WW	2	X to K
Galv., painted with white lead and shellac	2	X and above	2	X to H
Galv., painted with aluminum paint	2	X and above	2	X to K
Roofing "tin" (tinned sheet iron)	3	WG to M	2	M to H
Galv., painted with shellac	2	X and above	2	X to N
Glass	2	X and above	2	X to WW
Galv., painted with red lead and shellac	2	X and above	2	X to N
Galv., painted with commercial cup paint	3	X and above	2	X to N
Lead coated sheet iron	3	X and above	2	X to N

The grades produced in this test were slightly higher than those reported in 1938. The higher grade of a range is the highest produced during the test and the lower grade given is the lowest produced during the test.

Rosin is graded according to its color, the grades being, X. WW, WG, N, M, K, I, H, G, F, E, and D; X is the palest and D, the darkest.